

CLAIMS

1. A product, comprising:
a circuit path including a first path formed by a substantially nonconductive composition and a second path formed by a substantially conductive composition disposed on said first path so as to include at least one open circuit area along said second path; and
an electronic circuit element coupled to said circuit path, said electronic circuit element being energized by a source through said circuit path by closing said at least one open circuit area.
2. The product of claim 1, wherein said conductive composition resistivity is less than or equal to $5 \text{ k}\Omega/\text{mm}^2$.
3. The product of claim 1, wherein said second path resistance is less than or equal to $25 \text{ M}\Omega$.
4. The product of claim 1, wherein said first path resistance is greater than or equal to $100 \text{ M}\Omega$.
5. The product of claim 1, wherein a resistance of said first path relative to said second path is greater than or equal to $1 \text{ k}\Omega$.
6. The product of claim 1, wherein said first path has a width that is greater than said second path width.
7. The product of claim 1, wherein said first path has a width that is less than or equal to said second path.
8. The product of claim 1, wherein said circuit path has a width of approximately 1 mm.
9. The product of claim 1, wherein said conductive and nonconductive compositions each comprise ink.
10. The product of claim 1, wherein said conductive composition includes at least 20% of silver.
11. The product of claim 10, wherein said conductive composition includes less than 80% of silver.
12. The product of claim 1, wherein said conductive composition includes 10% to 40% carbon.
13. The product of claim 1, wherein said conductive composition includes 10% to 40% graphite.

14. The product of claim 1 wherein said source is a battery.

15. The product of claim 14 wherein said electronic circuit element is connected to said battery through said circuit path when a conductive element is connected across said at least one open circuit area.

16. An electrical switching system, comprising:

a circuit path including a first path formed by a nonconductive composition and a second path formed by a substantially conductive composition, said second path including at least one gap defined by first and second ends of said second path and that forms an open circuit area along said circuit path, said first path being disposed between said first and second ends so as to mask the appearance of said at least one gap; and

at least one circuit module coupled to said circuit path, said at least one circuit module being operable when a closed circuit condition is caused across said at least one gap.

17. The system of claim 16, wherein said conductive composition resistivity is less than or equal to $5 \text{ k}\Omega/\text{mm}^2$.

18. The system of claim 16, wherein said conductive composition resistance is less than or equal to $25 \text{ M}\Omega$.

19. The system of claim 16, wherein said nonconductive composition resistance is greater than or equal to $100 \text{ M}\Omega$.

20. The system of claim 16 further comprising a battery coupled to said second path and wherein said battery causes a current to flow across said at least one circuit module when the closed circuit condition exists.

21. A product, comprising:

an object; and

a circuit path disposed on said object, said circuit path including a first layer formed by a nonconductive composition, a second layer formed by a substantially conductive composition and one or more gaps disposed along said second layer that are operable as switching elements,

said first layer being disposed adjacent to said second layer so as to form an integral part of said circuit path.

22. The product of claim 21, wherein said object comprises paper and the circuit path comprises a continuous design.

23. The product of claim 21, wherein said object comprises apparel and the circuit path comprises a continuous design.

24. The product of claim 21, further comprising a responsive circuit element disposed on said object and coupled to said circuit path.

25. The product of claim 24, wherein said responsive circuit element is energized by a power source when said at least one gap is closed to cause a closed circuit condition on said circuit path.

26. The product of claim 24, wherein said second layer is disposed on top of said first layer so that said first layer masks said one or more gaps disposed along said second layer.

27. The combination of claim 24, wherein said first layer is disposed between said one or more gaps disposed along said second layer so as to mask said one or more gaps.

28. The product of claim 21, wherein said second layer is disposed underneath said first layer.

29. The product of claim 28, further comprising one or more additional layers of non-conductive compositions disposed on top of said first layer at predetermined locations along said circuit path.

30. The product of claim 28, wherein said one or more gaps are accessible through said first layer.

31. The product of claim 21 further comprising a battery coupled to said second layer, wherein said battery causes a current to flow across an electronic component when one or more conductive elements are placed said across said one or more gaps.

32. The product of claim 21, wherein a resistance of said first layer relative to said second layer is greater than or equal to $1k\Omega$.